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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,988	05/24/2006	Masato Higuchi	36856.1446	1419
54066 7590 10/20/2009 MURATA MANUFACTURING COMPANY, LTD. C/O KEATING & BENNETT, LLP 1800 Alexander Bell Drive SUITE 200 Reston, VA 20191				
EXAMINER PARVEZ, AZM A				
ART UNIT 3729		PAPER NUMBER		
NOTIFICATION DATE 10/20/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/595,988

Applicant(s)

HIGUCHI ET AL.

Examiner

AZM PARVEZ

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date
7/24/2008, 12/12/2007, 10/04/2007, 06/21/2007, 05/24/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 11, 12, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi et al., US Patent No. 5635115.
3. Regarding claim 11, Konishi et al. discloses :

A method of manufacturing an electronic component comprising the steps of: a mounting step including mounting on a collective mounting substrate (see Konishi et al., 10; Fig 7A) a plurality of electronic functional elements, each of the plurality of electronic functional elements (see Konishi et al., 13; Fig 1) having a substrate (see Konishi et al., 11; Fig 1) and an electronic functional portion provided on the substrate;

an arranging step including arranging a resin film (see Konishi et al., 20; Fig 7A) on the electronic functional elements mounted on the collective mounting substrate;

a reduced-pressure packaging step including putting the electronic functional elements and the resin film mounted on the collective mounting substrate in a

bag that has a gas-barrier property (see Konishi et al., 38a; Fig 7B and Line 22; column 14) , **and hermetically sealing the contents inside the bag by closing an opening of the bag after depressurizing the inside of the bag** ; The examiner interprets the reduced-pressure packaging step as such: hermetically sealing (via 38a, 38b, & 38d) the contents (10, 20, 31) inside the bag (38a) (Fig. 7B) by closing (e.g., the bag will be closed by forming of the bag around the contents during the heating process along with the vacuumizing effect created by (38d) an opening of the bag (38a) after depressurizing in the inside of the bag (e.g., it is noted that '115 sealing process prevents any "bubbles being mixed with the molten resin", and thus would depressurize the bag before any closure/closing of the bag during the heating step.)

a sealing step including sealing the electronic functional elements with a sealing resin member formed from the resin film by causing the resin film to infiltrate between the electronic functional elements mounted on the collective mounting substrate (see Konishi et al., Line 30; column 14) ; and

a dividing step including dividing the collective packing mounting having the resin-sealed electronic functional elements into individual electronic functional elements(see Konishi et al., 70; Fig 17C) .

4. Regarding claim 12 , Konishi et al. discloses:

The sealing step includes a curing step causing the resin film to infiltrate between the electronic functional elements (see Konishi et al., Line 53; column 12 and line 17; column 14) , **heating the electronic functional elements and the collective**

mounting substrate covered with a sealing resin precursor formed from the resin film (see Konishi et al., Line 37; column 12) , and curing (see Konishi et al., Line 54; column 12) the sealing resin precursor to obtain the sealing resin member, and the curing step includes performing heating in a pressure-controlled hermetically sealed space (see Konishi et al., Line 54; column 12 and line 27; column 14) .

5. Regarding claim 16, , Konishi et al., discloses:

The sealing step further includes heating the resin film to soften (see Konishi et al., Line 36; column 15) the resin film and for applying pressure to the resin film via a roller or a press machine (see Konishi et al., 35; Fig 10B).

6. Regarding claim 17, Konishi et al. discloses :

The arranging step includes adhering a parting sheet (see Konishi et al., 31; Fig 7A) on one surface of the resin film, and arranging the resin film on the collective mounting substrate having the electronic functional elements thereon so that the parting sheet side of the resin film faces outside (see Konishi et al., Fig 7A).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 13,14, and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Konishi et al. as applied to claim 11 above, further in view of Bureau et al., US Patent No. 6492194.

9. Regarding claim 13, Konishi et al. do not disclose:

The electronic functional element is a surface acoustic wave element having a vibration portion as the electronic functional portion disposed on a piezoelectric substrate.

However Bureau et al. teaches

The electronic functional element is a surface acoustic wave element having a vibration portion as the electronic functional portion disposed on a piezoelectric substrate (see Bureau et al., Line 17; column 1).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify Konishi et al. by providing a surface acoustic wave element, as taught by Bureau et al., since such a modification would have provided a different functional properties and use.

10. Regarding claim 14, Konishi et al. do not disclose :

In the mounting step of surface acoustic wave element, the vibration portion is arranged so as to have a space between the vibration portion and the collective mounting substrate and so as to face the collective mounting substrate.

However Bureau et al. teaches

In the mounting step of surface acoustic wave element, the vibration portion is arranged so as to have a space (see Bureau et al., Line 19; column 1) between the vibration portion and the collective mounting substrate and so as to face the collective mounting substrate.

It would have been obvious to one with ordinary skill in the art at the time of invention to modify Konishi et al. by providing a surface acoustic wave element on the substrate of a piezoelectric substrate with free space , as taught by Bureau et al., since such a modification would have provided a different functional properties and use.

11. Regarding claim 19, Konishi et al. do not disclose :

The mounting step includes a flip-chip bonding step for mounting the plurality of electronic functional elements through bumps by flip-chip bonding.

However Bureau et al. teaches

The mounting step includes a flip-chip bonding step for mounting the plurality of electronic functional elements through bumps by flip-chip bonding

(see Bureau et al., Line 30-36; column 1).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify Konishi et al. by providing a surface acoustic wave element on the substrate with flip chip type contacts and electrical pads , as taught by Bureau et al., since such a modification would have provided a different functional properties and use.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., as applied to claim 11 above, in view of Bureau et al ('194) and further in view of Hikata et al , US Patent No. 6376915 .
13. Regarding claim 15, Konishi et al., together with Bureau et al., do not disclose :

The resin film includes filler and a maximum particle size of a particle distribution of the filler is larger than a gap between the electronic functional element and the collective mounting substrate, and an amount of the filler having a particle size larger than the gap between the electronic functional element and the collective mounting substrate is about 5 wt % or more with respect to the total amount of filler.

However Hikata et al. teaches

The resin film includes filler and a maximum particle size of a particle distribution of the filler is larger than a gap between the electronic functional element and the collective mounting substrate, and an amount of the filler having a particle size larger than the gap between the electronic functional element and the collective mounting substrate is about 5 wt % or more with respect to the total amount of filler (see Hikata et al., Line 19-21; column 3).

It would have been obvious to one with ordinary skill in the art at the time of invention to modify Konishi et al. by providing filler materials with larger size than the distance between solid body surface and the surface of semiconductor chip , as taught by Hikata et al., since such a modification would have eliminates the danger of the semiconductor chip surface damaged by the filler in the package material.

14. Claim 18 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., with reference to column 13, paragraph 2 discloses that the surface of the sealing resin 21 is finished to a desired state (e.g., mirror state), however it would have been well known to one of ordinary skill in the art at the time of invention that the surface roughness of the resin film may be selected in accordance with an actual or intended purpose in a particular limited range of the technology.
15. Claim 20 is rejected under 35 U.S.C. 103(a) as being obvious of Konishi et al., as applied to claim 11 above, and further in view of view of Komatsu et al , Japanese Publication JP 2000-306810 .
16. Konishi et al. do not disclose :

The bag has a multi-layered structure having a thermoplastic resin layer as an innermost layer and a heat-resistant resin layer with a higher heat resistance and gas-barrier property that is higher than those of the thermoplastic resin layer as an outermost layer.

However Komatsu et al. teaches

The bag has a multi-layered structure having a thermoplastic resin layer as an innermost layer and a heat-resistant resin layer with a higher heat resistance and gas-barrier property that is higher than those of the thermoplastic resin layer as an outermost layer (see abstract) *a heater 3 and a cover sheet 4 are successively laminated with sheet-like adhesives (adhesive layers) 5 in between in a sealed package 10 formed of a flexible heat-resistant and ventilation-resistant sheet 12 with the sheet 12 being faced to the surface of the cover sheet 4, a deaeration process for setting a

vacuum in the package 10 by evacuating the air from the package 10, and a heating/pressuring process for heating the package 10 to a prescribed temperature in a chamber 20 housing the package 10, and at the same time, pressurizing the package 10 with the gas pressure maintained at a prescribed value in the chamber 20". .

It would have been obvious to one with ordinary skill in the art at the time of invention to modify Konishi et al. by providing a multi-layered heat and air resistant bag, as taught by Komatsu et al., since such a modification would have provided a better sealing and curing steps.

Response to Arguments

17. Applicant's arguments filed 7/17/2009 have been fully considered but they are not persuasive. With respect to applicant's arguments of "uneven pressure distribution causes voids to occur in the resin...", the argued statement does not appear in applicant's claimed language. Furthermore, the reference relied upon, nor applicant's disclosure, appears to support the alleged argument.

With respect to applicant's arguments that '115 "...vacuum suction sack 38a could or should be hermetically sealed before the step of sealing the resin", applicant is urged to note the above rejection of record with respect to such alleged argument.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AZM PARVEZ whose telephone number is (571)270-1391. The examiner can normally be reached on 8:30-5:30/ Alt Fri day off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DERRIS BANKS can be reached on 571-272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Derris H Banks/
Supervisory Patent Examiner, Art Unit 3729

AZM PARVEZ
Examiner
Art Unit 3729